

20. (Twice Amended) The disc drive assembly of claim 18, wherein the means for stacking and rotating includes a spindle motor supporting the plurality of discs for operational rotation at 10,000 rpm.

REMARKS

The Applicant has carefully read and reviewed the Office Action mailed October 17, 2000, and the references enclosed therewith. Claims 1-7, 11-14, and 18-20 were rejected. In response thereto, the claims have been amended to overcome the Examiner's objections. Claims 1-5, 7, 11, 13, 18, and 20 have been amended. Claims 1-7, 11-14, and 18-20 are pending in the application; claims 8-10 and 15-17 are still pending in the application but have been withdrawn from consideration. A marked up copy of the claims as amended is provided as an appendix to this response in compliance with the requirements of 37 CFR § 1.121.

Claim Objections

Claims 5, 7, 13 and 20, have been objected to for informalities. Those claims have been amended as provided by the Examiner's suggestion.

Rejection under 35 U.S.C. Section 112

Claims 1-7, 11-14 and 18-20 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicant respectfully disagrees with the rejection of claim 1 and 3 that the term "a standard configuration" is vague and indefinite. First, the term a "standard configuration" has a common meaning known to a person knowledgeable in the art. This is evidenced by the fact that industry standard configurations are recognized and followed so that one manufacturer's disc drive will fit into another manufacturer's computer. Second, the term is explicitly described in the written description. The housing "standard configuration" is described,

at least, on page 2, line 8, as "being the three-dimensional layout or plan of the space taken by the disc drive housing."

The applicant has amended claims 2, 4, 11, and 18 to obviate the need for a rejection under Section 112, second paragraph by amending the claims to include the limitation of a "standard diameter". Similarly, "standard diameter" is a term commonly known to those skilled in the art as a diameter of a disc associated with a standard configuration. The disc "standard diameter" is described, at least, on page 18, line 15 for a 3 1/2 inch standard configuration as having "standard 95mm discs"; likewise, one skilled in the art would recognize that there are also standard diameters relative to other standard configurations of disc drives.

Claim 9 has been amended to obviate the indefinite rejection of "ordinarily contained."

Claim 1 has been amended to obviate the rejection of claims 6, 12, 14 and 19 for a lack of antecedent basis. Under the claims, as amended, "the magnetic recording discs" does not lack proper antecedent basis since the claims rejected are dependent claims of an independent claim which recites the proper limitation which provides the necessary antecedent basis.

Rejection under 35 U.S.C. § 103

Claims 1-2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishida et al in view of Best et al. To establish a prima facie case of obviousness, three basic criteria must be met. **First**, the prior art references must teach or suggest all the claim limitations. **Second**, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. **Third**, there must be a reasonable expectation of success.

The aforementioned **first** basic criteria of a prima facie case of obviousness has not been met. In applying a 103 rejection, the claimed invention as a whole must be

considered. Neither Nishida or Best, either alone or in combination, suggest combining a smaller than standard disc with a standard housing configuration

Furthermore, the **second** criteria of a prima facie case is not satisfied. There is no motivation in the prior art references to combine or modify the prior art references to arrive at the present invention. Best does not provide any motivation to one skilled in the art to reduce the size of a disc while maintaining the standard housing configuration. Best teaches the use of four 2 1/2 inch form factor drives to occupy the same space inside of a computer as that of a disc drive with a 5 1/4 inch form factor. Moreover, there is no motivation found in the knowledge generally available to one skilled in the art to use a smaller than standard disc in a standard housing configuration. Before the present invention was implemented in Seagate's disc drives, the drive industry was developing disc diameters to be as large as possible within the standard configuration of the disc drive. This was based on the reasoning that drive capacity was the vital attribute of a drive and thus it could not be reduced. Accordingly, the method of reducing the disc diameter was counterintuitive to increasing the disc capacity.

Section 103 and established law preclude using hindsight reconstruction in determining obviousness. The statement by the Examiner that "reducing disk diameters allows more space inside of the disk drive for the other disk drive components" is impermissible because it is clearly hindsight based from the present disclosure.

Claims 3, 4, 11 and 18 were also rejected under 35 U.S.C. § 103(a). The line of reasoning for these claim rejections is the same as above; the prima facie case of obviousness has not been met.

Claims 5, 7, 13, and 20 are dependent claims which ultimately depend from claim 1 or claim 3, which are believed to be patentable over the prior art of record for the reason discussed hereinabove. Claims 5, 7, 13, and 20 are thus allowable as dependent claims depending from allowable independent claims and providing additional limitations thereto. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

Claims 6, 12, 14, and 19 are also dependent claims which ultimately depend from claim 1 or claim 3, which are believed to be patentable over the prior art of record for the reason discussed hereinabove. Claims 6, 12, 14, and 19 are thus allowable as dependent claims depending from allowable independent claims and providing additional limitations thereto. Reconsideration and withdrawal of the rejection of these claims are respectfully requested.

The applicant respectfully disagrees with the Examiner's statement of Official Notice, "that disks of 84mm are known in the art", and requests that the Examiner provide sufficient citation to show this assertion.

Insufficiency of Declaration

The applicant also respectfully disagrees with the Examiner's assertion that the Declaration filed under 37 CFR 1.132 is insufficient to overcome the rejection of claims 1-7, 11-14 and 18-20 based upon Nishida in view of Best. The Declaration clearly shows that there has been an enormous amount of commercial success and competitive recognition due to the present invention. As clearly stated in the description and also stated by the Examiner, smaller discs, as in the present invention, reduce the access times by having shorter distances which the heads must traverse. Further, the description also teaches that the present invention will reduce the power needed for the disc drive to operate. As stated in exhibit F of the declaration, the Cheetah 9LP, which implements the present invention, has "reduced power by up to 25%" and has allowed Seagate to provide the market with "the industry's first and only 7,200-rpm Ultra ATA disc drive". Further, exhibit D states that "Cheetah 9LP/18, doubled drive capacity and introduced the first high-performance disc drive with reduced-diameter media technology for substantially cooler drive operation and faster seek times."

As stated in the Declaration, the present invention has been extremely successful in the commercial market and the reasons for that success has been "the unexpectedly cooler performance and reduced seek times". These reasons for success are directly attributable to the present invention; as stated in the disclosure, page 9, lines 9-18; the

present invention provides the benefits of shorter seek times, a reduction in power, and no increase in failure due to temperature while having an increase in drive performance.

The success of the present invention is also evidenced by the fact that almost all major competitors who are still in the business have copied the design and implementation of the present invention. Further, that fact that the present invention has now become the industry standard is also compelling evidence of the nonobviousness of the claimed invention. Additionally, the fact that IBM, Hitachi, Fujitsu and Quantum, to name a few, are all extremely large corporations with ample resources, that copied the present invention rather than any prior art devices is strong evidence of nonobviousness.

The Examiner and PTO must give secondary considerations such as commercial success and competitive recognition due weight. The rationale for giving weight to 'secondary considerations' is that they provide objective evidence of how the patented device is viewed in the market place, by those directly interested in the product. Therefore, the applicant respectfully requests that due weight be given to the secondary considerations as found in the supporting Declaration and the market place.

CONCLUSION

In summary, the present invention as claimed is nonobvious in view of the prior art of record or any combination thereof. Furthermore, the Declaration under 37 CFR 1.132 filed on September 14, 1999 provides strong evidence of secondary consideration to overcome an obviousness rejection. Therefore, the rejection of claims 1-7, 11-14, and 18-20, as amended, under 35 U.S.C. § 103 should be withdrawn.


For these reasons, Applicant respectfully asserts that the present claims particularly point out and distinctly claim the subject matter which is regarded as the invention.

Therefore, it is respectfully submitted that the pending claims are in condition for allowance, and favorable action with respect to the present application is respectfully requested.

Respectfully submitted,

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Date


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APPENDIX: MARKED UP AMENDMENTS

Claims:

1. (Twice Amended) A disc drive assembly including:
 - a disc drive housing [having an external three-dimensional configuration matching] comprising a standard configuration; and
 - a disc drive supported in the housing having:
 - a stack of rotatable rigid recording discs wherein each recording disc has [having] a diameter smaller than the standard diameter of a rigid [discs] disc [ordinarily contained in a disc drive housing having] associated with the standard configuration, and
 - a head/actuator assembly for reading data to and writing data from selected ones of the discs.
2. (Thrice Amended) The disc drive assembly of claim 1, wherein the disc drive housing has a [standard] 3½ inch [external three-dimensional] configuration and each of the recording discs is a magnetic recording disc that has a diameter that is smaller than the standard configuration of 95 mm.
3. (Thrice Amended) A disc drive assembly including:
 - a disc drive housing [having an external three-dimensional configuration matching] comprising a standard configuration;
 - means for stacking and rotating a plurality of rigid recording discs within the housing, each disc having at least one recording surface and having a diameter smaller than the diameter of a rigid [discs] disc [ordinarily contained in a disc drive housing having] associated with the standard configuration,

the number of discs within the housing being greater than the number of discs ordinarily contained in [the disc drive housing having] the standard configuration;
a plurality of transducers, each associated with a recording surface of one of the discs; and
actuator means supporting the plurality of transducers for positioning each transducer adjacent a respective surface of a disc.

4. (Thrice Amended) The disc drive assembly of claim 3, wherein the disc drive housing has a [standard] 3½ inch [external three-dimensional] configuration and each of the recording discs is a magnetic recording disc that has a diameter that is smaller than the standard configuration of 95 mm.

5. (Twice Amended) The disc drive assembly of claim 1, wherein each of the recording discs is a magnetic recording disc and the stack of discs are mounted to a [motor] spindle motor for operational rotation at 10,000 rpm.

6. The disc drive assembly of claim 2, wherein each of the magnetic recording discs has a diameter of 84 mm.

7. (Twice Amended) The disc drive assembly of claim 2, wherein the stack of discs are mounted to a [motor] spindle motor for operational rotation at 10,000 rpm.

11. (Twice Amended) The disc drive assembly of claim 2, wherein the disc drive housing has a [standard] 3½ inch low-profile [external three-dimensional] configuration and the stack of magnetic recording discs comprises six magnetic recording discs within the housing which is greater than the number of discs of the standard configuration of five discs.

13. The disc drive assembly of claim 11, wherein each of the magnetic recording discs has a diameter of 84 mm.

13. (Twice Amended) The disc drive assembly of claim 3, wherein the recording discs are magnetic recording discs and the means for stacking and rotating includes a [motor] spindle motor supporting the plurality of discs for operational rotation at 10,000 rpm.

14. The disc drive assembly of claim 4, wherein each of the magnetic recording discs has a diameter of 84 mm.

18. (Twice Amended) The disc drive assembly of claim 4, wherein the disc drive housing has a standard 3½ inch low-profile [external three-dimensional] configuration and the number of magnetic recording discs in the housing is six which is greater than the number of discs of the standard configuration of five discs.

19. The disc drive assembly of claim 18, wherein each of the magnetic recording discs has a diameter of 84 mm.

20. (Twice Amended) The disc drive assembly of claim 18, wherein the means for stacking and rotating includes a [motor] spindle motor supporting the plurality of discs for operational rotation at 10,000 rpm.